

REMARKS

Initially, applicant would like to express his appreciation to Examiner Phan for the courtesies extended to applicant's attorney during a telephone interview on January 19, 2005. During the interview, Examiner Phan agreed with applicant's attorney that the Cearn's reference fails to teach the bi-directional input/output port limitation of applicant's independent claims 1, 12, and 21. As a result, Examiner Phan agreed to reconsider applicant's application.

Claims 1-9, 12-16, 18, and 21-31 are pending in the application.

Rejections Under 35 U.S.C. §103 (a)

Rejection Under Sakamoto, Meli, and Cearn's

Claims 1, 2, 12-13, 21, 23, and 25-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 6,490,064 issued to Sakamoto et al. on December 3, 2002 in view of U.S. Patent Number 5,995,259 issued to Meli et al. on November 30, 1999, and further in view of U.S. Patent Number 5,943,149 issued to Cearn's et al. on August 24, 1999.

Applicant respectfully traverses this ground of rejection.

First, applicant's claim 1 requires 1) the optical filter to be substantially transmissive to optical signals of a first band entering the input port and exiting on the bi-directional input/output port, 2) the filter to be substantially reflective for signals of the second band entering the bi-directional input/output port and exiting on the output port and, 3) the first optical filter and the second optical filter to be in an alternating arrangement.

The Office Action states that Sakamoto does not teach these limitations. Additionally, applicant contends that Meli and Cearn's do not teach or suggest these limitations either.

Instead, Meli discloses a bi-directional system that supports a first wavelength of 1533 nm and a second wavelength of 1556 nm, as stated in column 5, lines 20-24. These wavelengths are in the optical transmission band known as C-band. Also, as denoted in FIG. 6 and column 9, lines 28-35, Meli

discloses a bi-directional amplifier with an amplifying wavelength band inclusive of the same first and second wavelengths, i.e., in the C-band. Furthermore, Meli discloses a first optical coupler designed to allow a signal in the first wavelength to pass and reflect a signal of the second wavelength, and a second optical coupler designed to allow a signal in the second wavelength to pass and reflect a signal of the first wavelength.

Thus, the teaching of Meli is that the optical couplers support only one optical transmission band, i.e., C-band, rather than two different optical transmission bands, e.g., C-band and L-band, as required by applicant's claim 1. This is readily apparent, as the operation of the optical couplers in Meli within the single wavelength band is required because all signals must be within the amplifying wavelength band, i.e., gain bandwidth, of the bi-directional optical amplifier, i.e., the C-band amplifier. Therefore, Meli does not teach or suggest optical filters or couplers in an alternating arrangement that support two different optical transmission bands. Nor does Meli teach or suggest optical filters or couplers that are substantially transmissive to optical signals of a first band and substantially reflective for signals of a second band.

Cearns discloses an optical filter arrangement for demultiplexing an optical signal having a plurality of channels. Cearns' technique uses a narrowband optical filter to separate from the optical signal one channel having a central wavelength that is between the lower and higher wavelength groups of channels. Other wide band optical filters are subsequently used to separate the remaining lower and higher wavelength groups of channels into two separate subgroups of wavelength channels. Cearns does not disclose that the optical filter arrangement provides spectral and directional separation of two different optical transmission bands, e.g., C-band and L-band, as required by applicant's claim 1.

Also, applicant's claim 1 requires at least three ports, namely, an input port, an output port, and a bi-directional input/output port. Furthermore, the claim requires that applicant's optical filter be coupled to each of the combiner/seperator unit's ports.

Contrary to applicant's claim 1, the optical filter device in Cearn's has only two ports, namely, one input port and one output port. Thus, Cearn's lacks the bi-directional input/output port as required by applicant's claim 1.

Thus, the teaching of Cearn's is that the optical filter arrangement is not substantially transmissive to optical signals of the **first band** entering the input port and exiting on the bi-directional input/output port and the optical branch filter is not substantially reflective for signals of the **second band** entering the bi-directional input/output port and exiting on the output port as required by applicant's claim 1.

Second, in view of the foregoing, there is no motivation to combine the teachings of Sakamoto, Meli and Cearn's. One would not be motivated to use Meli's arrangement in Sakamoto's system because Meli's coupler arrangement is only for single wavelength band operation and Sakamoto's system operates in two wavelength bands. Therefore, Meli's coupler arrangement could not support the bi-directional transmission in two wavelength bands as required by Sakamoto. As such, substitution of the coupler arrangement from Meli into Sakamoto's system would render the invention being modified, i.e., Sakamoto's system, unsatisfactory for its intended purpose, which is to operate bi-directionally in two wavelength bands. Since the proposed combination of Sakamoto and Meli would change the principle of operation of Sakamoto, then the combination is improper.

For all of the foregoing reasons, the combination of Sakamoto with Meli and Cearn's does not teach or suggest all of the limitations in applicant's claim 1, and therefore claim 1 is not obvious.

Since claim 2 depends from claim 1, this claim is also allowable over the proposed combination.

Independent claims 12, 21, 23 and 28 have limitations similar to that in independent claim 1. The Sakamoto, Meli, and Cearn's combination does not teach those limitations previously discussed for the reasons explained hereinabove. Since claim 13 depends from claim 12, claims 25-27 depend from

claim 23, and claim 29 depends from claim 28, these claims are also allowable over the proposed combination.

Rejection Under Islam, Meli, and Cearn

Claims 23-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 6,631,028 B1 issued to Islam on October 7, 2003 in view of Meli, and further in view of Cearn.

Islam provides broadband amplifiers and communication systems for S-band, C-band, and L-band optical signals. However, Islam does not teach or suggest the limitation in applicant's independent claim 23 which requires that 1) the means for filtering is adapted to be coupled in an alternating arrangement to a second means for filtering, and 2) a first signal in a first signal band from a first path is transmitted onto an optical medium via the means for filtering, and 3) the means for filtering is substantially transmissive to signals in the first signal band and substantially reflective to signals in a second signal band received from the optical medium onto a path separate from the first path.

As previously described, the system described by Meli operates only in a single optical band, namely C-band. The optical filter arrangement in Cearn operates only in a single optical transmission band. Also, the reflected wavelengths in Cearn are not received from the optical medium as required by applicant's claim 23. Therefore, contrary to applicant's claim 23, Meli's optical couplers and Cearn's optical filters support only **one** optical transmission band, i.e., C-band, rather than **two** different optical transmission bands, e.g., C-band and L-band. Consequently, Meli and Cearn do not teach or suggest optical filters in an alternating arrangement that support **two different** optical transmission bands. And, Cearn does not teach or suggest, the means for filtering is substantially transmissive to signals in the first signal band and substantially reflective to signals in a second signal band received from the optical medium onto a path separate from the first path, as required by applicant's claim 23.

For all of the foregoing reasons, the combination of Islam with Meli and Cearn's does not teach or suggest all of the limitations in applicant's claim 23, and therefore claim 23 is not obvious. Since claims 24-27 depend from claim 23, these claims are allowable over the proposed combination.

Applicant's independent claim 28 has a limitation similar to that in applicant's claim 23, which was shown to be allowable. Applicant's claim 28 requires that the 1) optical filter is adapted to be coupled in an alternating arrangement to a second optical filter and 2) the second optical filter allows the signals in the second signal band to flow onto the transport medium and reflects the signals in the first signal band. Islam, Meli and Cearn's do **not** teach or suggest this limitation for the reasons explained hereinabove, and therefore claim 28 is not obvious. Since claims 29-30 depend from claim 28, these claims are allowable over the proposed combination.

Rejections Under Sakamoto, Meli, Cearn's, Kakui, Alexander (077) and Alexander (997)

Claims 3, 18, 22, 24 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakamoto and Meli in view of Cearn's and further in view of U.S. Patent Number 6,549,315 issued to Kakui on April 15, 2003.

Claims 4-7, 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakamoto and Meli in view of Cearn's and further in view of U.S. Patent Number 6,233,077 issued to Alexander et al. on May 15, 2001.

Claims 8, 9, 16 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakamoto and Meli in view of Cearn's and further in view of U.S. Patent Number 6,281,997 issued to Alexander et al. on August 28, 2001.

The Sakamoto, Meli, and Cearn's combination does not teach or suggest the limitations recited in applicant's independent claims 1, 12, 21, 23, and 28 for the reasons explained hereinabove. Kakui, Alexander (077) and Alexander (997) do **not** teach or suggest applicant's requirement that second means for filtering is substantially transmissive to the signals in the **second signal band** and

substantially reflective to the signals in the **first signal band**, which is lacking from the combination of Sakamoto, Meli, and Cearn.

Since claims 3-9 depend from claim 1 and claims 14-16, 18 and 31 depend from claim 12, claim 22 depends from claim 21, claim 24 depends from claim 23, and claim 30 depends from claim 28, these claims are allowable over the proposed combination.

Conclusion

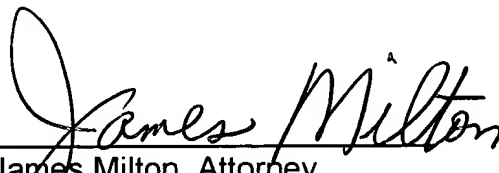
It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicants' attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the **Lucent Technologies Deposit Account No. 12-2325.**

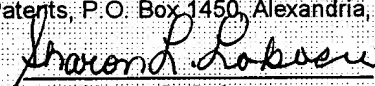
Respectfully submitted,

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I hereby certify that this correspondence is being deposited in the United States Postal Service as first class mail in an envelope with sufficient postage addressed to: Mail Stop Amendment
Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on Feb. 17, 2005.

 Date Feb. 17, 2005
Sharon L. Lobosco